COMMENTS ON THE ENERGY-AVERAGED TOTAL NEUTRON CROSS SECTIONS OF STRUCTURAL MATERIALS IN THE FEW MEV RANGE*

by

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ABSTRACT

Broad-resolution total neutron cross sections of carbon, iron and titanium are measured with varying sample thicknesses from $\tilde{\sim}$ 1 to 4 MeV. Energy-averaged cross sections are deduced to accuracies of $\lesssim$ 1 percent. The carbon values are consistent with previously reported precision measurements. The measured energy-averaged iron and titanium values are larger than the calculated energy average of some previously reported higher resolution measured and evaluated cross sections by as much as 10 percent. These differences may be indicative of a physical phenomenon which has implications on the design of fast-reactor systems.

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